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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,524	09/29/2003	Jun Quiang Li	678-1210	1839
28249	7590	08/10/2005	EXAMINER	
DILWORTH & BARRESE, LLP 333 EARLE OVINGTON BLVD. UNIONDALE, NY 11553			NGUYEN, KHAI MINH	
			ART UNIT	PAPER NUMBER
			2687	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/673,524

Applicant(s)

LI ET AL.

Examiner

Khai M. Nguyen

Art Unit

2687

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-10 is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/29/03, 3/18/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The references listed in the Information Disclosure Statement filed on September 29, 2003 and March 18, 2004 have been considered by the examiner (see attached PTO-1449 form or PTO/SB/08A and 08B forms).

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Dent (U.S.Pub-20030129984).

Regarding claim 1, Dent teaches a virtual cell management method using sectors in an orthogonal frequency division multiplexing mobile communication system including

a cell structure having cells each comprised of a plurality of sectors (fig.4a-4c, paragraph 0031-0033), the cells performing data communication with mobile terminals within a corresponding cell through at least one subchannel having orthogonality (fig.4a-4c, paragraph 0031-0033), the method comprising the steps of:

forming a virtual cell with a particular one of sectors constituting a particular cell and sectors of two other cells neighboring the particular sector (fig.1-4, 7-9, paragraph 0025, 0039, 0042);

transmitting, by three base stations forming the virtual cell (fig.1-4, 7-9, paragraph 0039, 0042), an interference measurement value and a channel parameter estimation value from a mobile terminal located in the virtual cell to a base station controller that controls the virtual cell (paragraph 0003-0004), thereby allocating at least one wireless resource in the virtual cell (fig.16, abstract, paragraph 0068-0069);

transmitting the at least one allocated wireless resource to the three base stations so that the base stations allocate a same subchannel to each mobile terminal located in the virtual cell (fig.1-4, 7-9, abstract, paragraph 0025, 0039, 0042, 0070); and

transmitting same data over the allocated subchannel (pagragraph 0005, 0029, 0070).

Regarding claim 2, Dent teaches the virtual cell management method of claim 1, wherein the subchannel is dynamically allocated within an entire frequency bandwidth

that is usable in the virtual cell (fig.1-4, 7-9, abstract, paragraph 0025, 0039, 0042, 0070).

Regarding claim 3, Dent teaches the virtual cell management method of claim 2, wherein the entire frequency bandwidth is reused in another virtual cell neighboring the virtual cell (fig.1-4, 7-9, abstract, paragraph 0025, 0031-0033, 0042, 0070).

Regarding claim 4, Dent teaches the virtual cell management method of claim 1, further comprising the step of receiving the same data transmitted from the base stations over the allocated subchannel, through macro transmit diversity (paragraph 0007-0008, 0039, 0053).

Regarding claim 5, Dent teaches the virtual cell management method of claim 1, wherein the at least one wireless resource includes at least one of frequency bandwidth, initial bits, subcarriers, and refined bits (paragraph 0051, 0059).

***Allowable Subject Matter***

4. Claims 6-10 are allowed.

Regarding claim 6: The following is an examiner's statement of reason for allowance: Prior art teaches an apparatus for allocating resources of a virtual cell formed with a particular sector forming a particular cell and sectors of two other cells neighboring the particular sector, in an orthogonal frequency division multiplexing mobile communication system having a cell structure formed by cells each comprised of a plurality of sectors, the cells performing data communication with mobile terminals within a corresponding cell through at least one subchannel having orthogonality. However, the prior art fails to teaches an mobile terminals, located in the virtual cell, for transmitting, to base stations, interference information measured during a power off of the base stations and channel information estimated using pilot signals from the base stations, and performing demodulation with at least one subchannel based on access information from the base stations; the base stations for transmitting the interference information and the channel information from the mobile terminals to a base station controller that controls the virtual cell, receiving wireless allocation information from the base station controller, transmitting the access information to the mobile terminals, allocating a same subchannel to each mobile terminal located in the virtual cell, and then transmitting same data over the allocated subchannel; and a resource allocator for allocating wireless resources in the virtual cell based on the interference information and the channel information transmitted through the base station controller, and transmitting the allocated wireless allocation information to the base stations through the base station controller.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submission should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Citation of Pertinent Prior Art***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Magnusson et al.** (U.S.Pat-6285874) discloses Cell identification on distance.

**Kim** (U.S.Pat-6477367) discloses System and method for identifying hot spots in the d-amps wireless system.

**Jarleholm et al.** (U.S.Pant-67354351) discloses Method and apparatus for providing downlink power control in radio communication system employing virtual cells.

**Driessen** (U.S.Pat-6760593) discloses Cellular communication system with virtual antennas.

**Horwath et al.** (U.S.Pub-20030078043) discloses Method for automatically sorting the neighbor list of a cell in a communications system.

**De la Chapelle et al.** (U.S.Pub-20040014472) discloses Managing satellite fixed beam uplink using virtual channel assignments.

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khai M. Nguyen whose telephone number is 571.272.7923. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 571.272.7922. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Khai Nguyen  
Au: 2687

8/5/2005

  
8/8/05  
LESTER G. KINCAID  
SUPERVISORY PRIMARY EXAMINER